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ABSTRACT

The Educational Resources Information Center (ERIC) system and the ERIC Processing and Reference Facility are briefly discussed as introductory and background material to this paper on the technical and managerial aspects of operating an information processing center. The following topics are covered under the subject of managing the ERIC data base for dissemination: file protection, maintaining a dynamic data base, file analyses, a documentation package, file availability, customer relations, access tools, and schedule adherence. Communication, coordination, and monitoring and feedback problems of networking are discussed. Various forms used in the ERIC system and statistical information about the data base are appended. (SJ)

ED 069303

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MANAGING THE ERIC DATA BASE

(Technical and Managerial Considerations in Operating a Computerized Information Processing Center in Support of a Multi-Disciplinary Network)

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I. INTRODUCTION

A few weeks ago my wife and I attended an evening with Buckminster Fuller. The strongest single impression we received was that of a man dedicated to the goal of doing his own thinking about things and refusing to accept what his many would-be "teachers" attempted to fill his head with. He had a story to tell about people who call him and ask for his help with some idea that they have. He presents to them his view that the best thing they could do would be to rely on their own resources and think the idea through thoroughly on their own. Through a slick series of Socratic maneuvers, based on this philosophical assumption, he very rapidly proceeds to the conclusion that if they <u>really</u> want his help he'll quickly hang up the telephone; whereas if they don't want his help he'll stay on the line and talk.

The story immediately appealed to me as a way people invited to speak could give their interlocutor a friendly "hard time", and I regretted not having it handy when Joe Ann first called on me to come here today. Behind the story, however, there lies the nub of a practical problem that always occurs to me when I am asked to talk about what we do at the ERIC Processing & Reference Facility: "How can one person's experience be utilized for the benefit of others?"

Fuller obviously wouldn't ask us all to re-think the sum of the world's knowledge to date; he himself obviously accepts a good deal of what other investigators say and of what's in the textbooks. I would prefer, therefore, that you took from this presentation one or two ideas that, upon critical examination, you found to be probably true, useful, and retainable, rather than that you took a rapidly fading short-term memory of the details of our operation. At least that is what I will aim for.

II. WHAT IS ERIC?

The acronym ERIC stands for "Educational Resources Information Center". ERIC was originally conceived by staff of the Office of Education, back in the early and mid-1960's, as a mechanism for capturing and controlling the literature of education. It was felt that a fundamental first step in assuring dissemination of research results was to control the literature in which these results were reported. At the time ERIC was first discussed, the literature of education was free-flowing, fugitive, and absolutely uncontrolled. Research reports submitted to OE by their contractors and grantees received an initial scattered distribution and then essentially disappeared. A valuable document produced one year was unobtainable or even unidentifiable by prospective users a year or two later. ERIC was intended to correct this chaotic situation and to provide a foundation and basis for subsequent information analysis activities and attempts to see that good and effective ideas actually flowed into the educational arteries of the country and caused change in the classroom and other learning situations.

Because of the nature of education in this country, (where it is a tremendously diverse and decentralized activity with many levels, numerous strong and independent professional specialty groups, and an orientation toward local and state control) it was felt by the designers that ERIC should be a network of organizations rather than a single monolithic information center located in Washington (similar to the Defense Documentation Center (DDC); the NASA Scientific and Technical Information Facility; or the National Technical Information Service (NTIS)). They therefore conceived of a network of so-called "Clearinghouses", located across the country in "host" organizations that were already naturally strong in some areas of the field of education. For example, the Council for Exceptional Children was the ideal place to locate a Clearinghouse concerned with the literature on handicapped and otherwise exceptional children; the Modern Language Association was the ideal place to locate a Clearinghouse dealing with the field of "Languages and Linguistics"; the Educational Testing Service in Princeton, was an ideal place to locate a Clearinghouse covering the area of "Tests, Measurement, and Evaluation", and so on.

Beginning in 1966, therefore, what eventually took shape was a network of nearly 20 Clearinghouses, each covering an area of the vast field of education and each housed at a contractor institution which already had distinct strengths in the subject area involved. The contracts with the Clearinghouses originally gave them responsibility for acquiring all documents in their area and for "processing" these documents. By processing I mean the familiar surrogation activities of cataloging, indexing, and abstracting. This scheme has worked out very well. Virtually everybody connected with ERIC has concluded over

time that the network of Clearinghouses does a better job of ferreting out the fugitive literature of education than one single information center in Washington could ever do. There are similar advantages to be found in the information analysis activities. Decentralization, therefore, has paid off for ERIC. The designers realized, however, that the services they wanted to provide out of the network required also a certain amount of centralization. For example, they needed tangible evidence of their bibliographic control objective in the form of a standard abstract journal (with indexes), that could be distributed to libraries and others all over the world. In other words, in order to produce products that included the output of all network components, it was necessary that the document and resource data gathered by the Clearinghouses eventually come together at one central assembly place. The designers therefore conceived of a central computerized Facility serving as a switching center for the network. The data recorded by each of the Clearinghouses would be input to this Facility to form a central data base from which publications and indexes could then be produced, and other dissemination activities take place.

The same pattern held true for the service of document supply. The designers decided that it would not suffice to simply tell people that a given document existed. Too much frustration would still be experienced in trying to obtain a copy; especially as time went by. It was, therefore, necessary to provide a document reproduction service where any non-copyrighted document announced in the journal to the user could be obtained. In other words, the ERIC designers wanted to provide a complete document service: acquisitions, cataloging, indexing, abstracting, announcement, and document access.

Both of these centralized services had entrepreneurial aspects to them. The Government obviously couldn't afford to subsidize every user's document needs; the document reproduction effort had to be self-supporting; the people who wanted the documents must pay for the service. In the same way, the dissemination of the data base could not be subsidized by the taxpayers; the people who wanted the magnetic tapes containing this data would have to pay the costs of providing what they wanted. The Government was willing to take responsibility for seeing to the establishment of the basic data base, but not beyond that to the extent of providing products from it for free. "Seed" money, yes; money for everybody's operation, no.

For this reason, and also because both of the central facilities had to make use of advanced technologies (e.g., computerized photo-composition and micro-reprographic technology), it was decided that these centralized facilities should be located in the commercial sector.

We therefore have a network with four levels. The first, or governmental, level is Central ERIC (the funder, policy setter, and monitor), now housed within the National Institute of Education. The second, or non-profit level, is made up of the 18-20 Clearinghouses located at Universities, Professional Societies, Associations, Councils, etc. The third, or commercial level, consists of the centralized facilities for managing the data base, putting out published products, making microfiche, and reproducing documents. And lastly, occupying the fourth level, there are the users of the public sector, receiving the benefit of these activities.

That is then what ERIC is.

III. THE ERIC PROCESSING & REFERENCE FACILITY

Within the ERIC network that I have just described, the ERIC Processing & Reference Facility resides at the third or commercial level, and under the direction of Central ERIC, serves as the switching center, central computer facility, and data base manager.

Let me very rapidly cover some of the functions that go on at this Facility:

1. Acquisitions

Even though the major responsibility for document acquisition rests with the Clearinghouses, the Facility receives all the documents being furnished from the Office of Education and from the National Institute of Education to the Clearinghouses. We assign these research reports to appropriate Clearinghouses on the basis of their subject matter. We also have special responsibility for the Federal area. The Federal area is a special problem because of the complexity of Government and also because it is desirable to avoid multiple acquisitions efforts from the many Clearinghouses all going to the same agency. We coordinate this so that only one contact is made.

2. Document Control

At any given moment in time, a large number of documents are circulating throughout the network, going from NIE to us, from us to Clearinghouse, from Clearinghouse to us, and from Clearinghouse to Clearinghouse. We attempt to keep track of this activity so that duplicate effort is avoided.

3. Document Processing

As with Acquisitions, though the major responsibility for processing documents rests with the Clearinghouses, the Facility does a certain amount of original cataloging, indexing, and abstracting. Among other things, there are always those documents that must get in the very next journal and for which therefore you must avoid mail delays.

4. Editing

All data keyed into the data base is first edited for accuracy and conformance to established rules and procedures. There is an initial strictly intellectual edit, where we red pencil incoming typescript, and a second edit to catch typographical errors introduced in the keying process and other errors that the computer has been able to detect through various data validation routines; in the second edit the editors work off of a computer printout.

5. Lexicography and Authority List Activity

We maintain a Thesaurus of valid indexing terms, together with a cross-reference structure relating these terms to one another. We maintain an authority list of valid corporate and institutional names. No index term or organization name may enter the data base without prior admission to their respective authority lists.

6. Reference

We answer some 300-400 letters per week. These come from the entire spectrum of users: from the researcher, the administrator, the university professor, the Government official, the teacher, the counselor, the student, the housewife, all the way down to the kid plagued with a high school debating topic problem. We obviously cannot provide a detailed customized response in each case. We do provide all document identification services, but in most other instances we simply have to point the inquirer toward the various published forms of the data base and tell them they are on their own. People wanting searches are given addresses of various organizations where searches of the data base may be purchased.

7. Computer Processing

The computer system that puts together the ERIC Data Base, maintains and corrects it, and manipulates it to produce various printed outputs, is a large integrated system comprising over 100 separate modules. The system was programmed for the IBM 360 series of computers and is entirely in Assembly Language. The main production sequence involves receiving material from the editors nearly daily and providing them in turn with computer error and activity lists nearly daily. We therefore go through the month with almost daily short computer runs, capped at the end of the cycle with a flurry of long runs that prepare the indexes from the basic unit entries, update the master files, and manipulate the updated files, usually for high speed photocomposition devices, such as GPO's Linotron. The computer system also maintains the various authority lists, generates statistical and management data, and performs numerous housekeeping chores such as checking for duplicates. We maintain the computer system and are constantly either enhancing its features, making modifications to fit new requirements, or adding new programs to its library.

8. Publishing

The principal published products of the ERIC system are the twin abstract journals Research in Education (RIE) and Current Index to Journals in Education (CIJE). The former is put together by the Facility and announces about 1,000 technical or research reports in each issue. It is prepared in the form of a magnetic tape which we send to GPO, which handles the actual printing. Current Index to Journals in Education is put together by another ERIC contractor, CCM Information Corporation, and also appears monthly. It announces approximately 1,500 journal articles in each issue. It is prepared commercially via Videocomp. The CIJE data is transmitted on magnetic tapes to the Facility for integration into the ERIC data base.

9. The ERICTAPES Data Base Dissemination Project

The total ERIC Data Base now amounts to well over 100,000 records for research reports and journal articles in the field of education. In terms of the annual budgets for the network since 1966, this data base can be said to represent an investment of several million dollars. It is now growing at a rate of approximately 30,000 records a year.

There has been a steadily increasing interest in obtaining this data base and in searching it. The ERIC Facility makes the data base available at a standard price of $80 per magnetic tape. (There are various options which I won't go into here). The basic RIE data base now occupies 3 tapes at 1600 BPI. Standing orders for quarterly update tapes are currently available, and we are seriously thinking of offering monthly dates if interest is high enough.

Over 90 organizations have purchased all or parts of the ERIC Data Base over the past $2\frac{1}{2}$ years. Enough activity is now going on out in the field, that we recently inaugurated a User Services Project intended to further communication and coordination amongst the users of the ERIC Data Base in machine-readable form. Both Lockheed and System Development Corporation offer on-line search services for the ERIC Data Base. There are at least a dozen organizations, such as the North Carolina Science and Technology Research Center and the University of Indiana that are selling batch search services against the data base. Recently the National Library of Medicine's MEDLINE on-line network for searching the MEDLARS files, added the ERIC file to its repertoire. All this activity requires the establishment of some basic communication links among users if unnecessary confusion and redundance are to be avoided. Along these lines, we have just held our first Data Base Users Conference and we are about to bring out a Newsletter. Various consultation and supporting services will also be offered, all in the interests of more efficient and effective utilization of the ERIC Data Base.

That then is what the ERIC Facility does.

IV. POLICIES AND PRACTICES IN MANAGING THE ERIC DATA BASE FOR DISSEMINATION

I would like next to describe very briefly some of the policies and practices we follow in managing the ERIC Data Base for dissemination. These practices work for us and are based on some three years of experience in the doing:

A. File Protection

Every new employee is heavily indoctrinated with the idea that ERIC is an irreplaceable "multi-million dollar file" representing years and years of effort, and that it must be protected at all costs. We have a formal file protection plan which the computer operations staff follows religiously. We deliberately overstress the orientation at the beginning in order to avoid the problems that can be caused by careless handling and inadequate tape library controls.

B. Dynamic Data Base - Files Always Open to Correction

In the early days, when the ERIC system was strictly publication oriented, corrections discovered post-publication were not always made to the tapes. Once a printed publication is disseminated you can't really effectively correct it; the error is "immortalized". When publication was the only form of data dissemination practiced, it was not important to go back and correct what might never be used again. Now, however, the data base is being constantly duplicated and disseminated in machine-readable form. This has resulted in a policy that the data base is dynamic and always open to revision. We would go back and correct accession number one if we discovered an error in it.

C. File Analyses - Know Your Data Base

Know your data base. Don't be embarrasingly ignorant of its properties, or the properties of the items for which it contains records. How many index terms are there per record on the average? How many different personal authors are there on the total file? The answers to such questions are potentially very important to field users designing systems to store and manipulate your data base. What is the average size of the documents entering the system and how are the sizes distributed? The answer to this question can be crucial to an organization engaged in microfiching your documents. Are there index terms used on one of your files but not on another? Ignoring this question can lead to puzzling no-hit searches. You can save yourself many problems by simply insisting on having at your fingertips the basic parameters of your data base.

D. Documentation Package

Prepare a good package of documentation describing your files to field users. Provide full information in a well-organized format. Don't be cryptic. Many people besides programmers will be working with your documentation; make sure it is written with a reasonable degree of expository skill. Examine some of the better existing documentation packages, such as that of the American Chemical Society, or abide by the COSATI guidelines for describing data interchange formats. You can save yourself many problems by taking care initially with the documentation package you send out with your tapes.

E. Make All Types of Files Available - Serial, Index, and Authority Files

Examine all your files for possible utility to field users. Don't just stop with one. It so happens that in addition to its basic serial or sequential file of records, ERIC maintains various inverted or index files representing different cuts at the same basic data. We make these inverted files available on the same basis as the central data base. Many systems designed to search the ERIC files have been based on these inverted files in lieu of taking the serial search approach. Our Thesaurus, which we also have on tape, has also been used by some on-line systems to assist the user in a browsing mode.

F. Stand Behind Your Data

Stand behind your data. Don't just send it off with a "Good Luck!" If a user has a problem, offer to either investigate the tape about which he is complaining or to replace it. Continued problems with tapes you believe perfect indicate insufficient technical skills at the customer and are best handled by a gentle indication of this together with a refund. It is impossible to be in the tape distribution business without occasionally sending out tapes with bad labels, bad data, data checks, no data at all, or crinkled tape. It is best to recognize this and stand behind your tapes in the way that any merchant should his merchandise.

G. Access Tools

Provide access tools to your data base. There are a host of access tools that can usually surround any data base: the procedures manuals that governed data preparation, the index term usage records providing a history of the indexing activity, the authority lists providing a total list of the controlled access points, various cross-reference listings. If you are going to spend all this money assembling a large data base, it would be "penny wise and pound foolish" to not make provision for the basic tools you need to make effective use of the data base.

h. Schedule Adherence

The Facility has a very rigid and inflexible schedule by which it has to provide its Linotron tape to GPO. As long as this requirement is a fact of life, we attempt to extend it to out activity of providing the data base to field users. When you are the sole source of a needed data base, it is easy to be casual about schedules. This may be perfectly feasible, but it is hardly charitable, far-sighted, or even professional. The truth of the matter is that the field users often have their own schedule requirements (for searching, SDI announcements, etc.), which are every bit as important to them as the Facility's schedule is to it. In other words, just because you have the power to make people wait for your data, don't abuse that power.

V. SOME PROBLEMS OF NETWORKING

I would like next to settle on a couple of areas that over my three years with ERIC have come most persistently to my attention as problems peculiar to our having a decentralized network structure:

A. Communication

The first of these areas is simple communication among people. We all know that organizations that are in the same building can have serious communication problems. An organization that is scattered around the country has it in spades.

We exhort our staff to use the telephone. This may sound mundane, but in my opinion there is a definite resistance in working level people to making long-distance calls. They keep thinking in terms of their own home phone bills. It is necessary to convince them that you have a definite policy of using the phone to communicate essential information. It is amazing how often you can clearly show that a phone call can save many times its cost in wasted or unnecessary efforts at either end of the line. Often the cost of doing a letter (i.e., your time plus the secretary's, plus the postage, etc., plus the delay experienced) can clearly be shown to represent a more costly and less efficient solution to a given situation than simply dialing a number and resolving the problem immediately. We have a lot of phones at the ERIC Facility and every staff member is encouraged to think in terms of rapid voice communication now rather than bureaucratic-like paper shuffling involving delays. We shuffle enough bibliographic descriptions without thoughtlessly adding to the paper pollution. Our phone bill is large each month, but we keep tabs on it and in my judgment it more than pays its way in terms of making the network components feel that we are not remote but right there, just a dial-up away from them. The telephone is, of course, just one of several devices that make use of the same communication lines. Different network situations might require different devices. The main point is, however, that rapid electronic communication not be considered a luxury of management, but be deliberately extended to the working level staff so that comparable levels at the various nodes of the network are in ready communication.

2. Coordination

No matter how good the electronic communication, a lot more is needed to mold a group of organizations, located at different geographic locations, into a single smoothly-functioning network. Just as there is a tendency for working level staff not to use the telephone, there is a tendency for a network member group to feel independent, isolated, by itself, functioning in a vacuum, without recognition, outside leadership, necessary tools, etc.

The natural state of a node of a network seems to be solipsism - the concept that you can know nothing but your own self and its modifications, the idea that there may be nobody out there. It is necessary for the switching center to use a great deal of energy to dispel this attitude and to supply the wherewithal to make the node feel that it is a functioning part of a larger organism and working in coordination with other nodes.

We attempt to get around this in a number of ways. We provide each member of the network with a large number of tools, all of which emphasize the concepts of membership, similarities, acting in unison or on schedule, coordination, etc. For example, we regularly put out a Network Directory that lists all the components of the network with complete address and telephone numbers and also the complete staff of the network. We annually issue a Master Schedule that specifies when the Clearinghouses should take certain actions. Also, they can determine from this schedule exactly when other components are going to be doing things or exactly what is happening to material that they sent to other components. Updates to the Operating Manual, Authority Lists, and Supplements to the Authority Lists, Newsletters, special reports such as analyses of file properties or scope of interest overlaps among Clearinghouses, and many other items, are constantly flowing to the ERIC Clearinghouses from the Facility, in order to unify and coordinate the network.

There is probably a happy medium here, and no doubt it would be possible to drown the components of a network in materials of this type. We have not nearly reached that stage yet, however, and as long as we can clearly see a useful function for the material we are sending, we will continue to send out as many coordinative tools as we can put together. We believe they are eagerly welcomed.

3. Monitoring and Feedback

Nearly every network is constructed so that its components are asked to do at least a few things in the same way. Therein lies a problem. No matter how fine your procedures manual or instructional materials, no matter how good your training session, you still end up with an environment where input that has not all been under the same review is being received from a number of disparate locations remote from one another. The input is inevitably inconsistent, and it gets worse as time goes by. The staff of a Clearinghouse evolves in its own particular way like the exotic animals that Darwin discovered on the remote Galapagos Islands. There is a "genetic drift" in the staff of the nodes of a network that must be corrected for if the data processed by the nodes is to remain consistent and uniformly intelligible outside of the network.

Periodic training sessions at the central Facility are, of course, one way to get everybody back on the beam, but these are expensive because of the travel involved, and often cannot be managed on a large scale. Even with occasional training sessions, however, it is advisable to keep abreast of the situation via regular monitoring of input. In this way, you can detect when one of the nodes begins to drift from the standard and you can attempt to apply corrective action at a distance via feedback.

Let's take a real life example. Among their many other activities, each of the ERIC Clearinghouses process documents. They are all supposed to do this the same way, i.e., according to the same set of rules and guidelines. Needless to say, they don't all do the same kind of work. Some of the variation is immediately apparent to Facility editors; other variation is more difficult to detect in unit inputs because it is statistical in nature. For instance, the recommended maximum size of an abstract is 200 words. It takes skill to write a good abstract with this economy of words. In given situations, abstracts may validly be longer or shorter than 200 words. If, however, a Clearinghouse consistently input abstracts of longer than 200 words, it could have a serious impact on the size of the photocomposed journal and on the costs of publication and printing. This kind of variation from norm is best detected by the computer because of its statistical nature. Similarly, the recommended indexing level is around 10 index terms with no more than 5 targeted for appearance in the published indexes. Any given item may validly vary considerably either way from this norm. Any consistent variation from this norm would have an adverse affect on the size of the published subject indexes and eventually on the tape files themselves. Again, since the computer counts and keeps totals so much better than the editors, let this essential feedback be first detected and displayed by the computer. We do this kind of analysis on our central journal Research in Education, and it serves to achieve quality control, feedback to the Clearinghouses to keep them on target, and general understanding of one's data base, permitting greater predictability and therefore better management.

1959 – 60

CONCEPTUALIZATION AND FEASIBILITY STUDIES

1961

THESAURUS DEVELOPMENT (WESTERN RESERVE UNIV.)

1964

ERIC FOUNDED

1965

ERIC FUNDED (ESEA)

EDRS TO BELL & HOWELL (NOV)

1965

PANEL ON EDUCATIONAL TERMINOLOGY

CLEARINGHOUSES 1 – 12 ESTABLISHED

ERIC FACILITY TO NORTH AMERICAN (MAY)

"BIRTH" OF ERIC – FULL IMPLEMENTATION (JUNE)

RESEARCH IN EDUCATION (NOV)

1967

CLEARINGHOUSES 13 – 18 ESTABLISHED

NAME CHANGED TO "EDUCATIONAL RESOURCES" (JULY)

EDRS TO NCR (DEC)

1968

CLEARINGHOUSE ON TEACHER EDUCATION

1969

RESEARCH IN EDUCATION ON LINOTRON

CIJE JOURNAL PUBLICATION

1970

ERIC FACILITY TO LEASCO

CLEARINGHOUSES ON EDUCATIONAL MANAGEMENT; SOCIAL SCIENCE EDUCATION; TESTS, MEASUREMENT, AND EVALUATION

1971

EDRS CONTRACT TO LIPCO ON-LINE SYSTEM TO LOCKHEED

1972

CLEARINGHOUSE ON LANGUAGES AND LINGUISTICS

CLEARINGHOUSE ON READING AND COMMUNICATION SKILLS (BOTH AMALGAMATIONS OF TWO EXISTING CLEARINGHOUSES)

ERIC MOVES FROM OE TO NIE (JULY)

FIGURE I-1. ERIC CHRONOLOGY

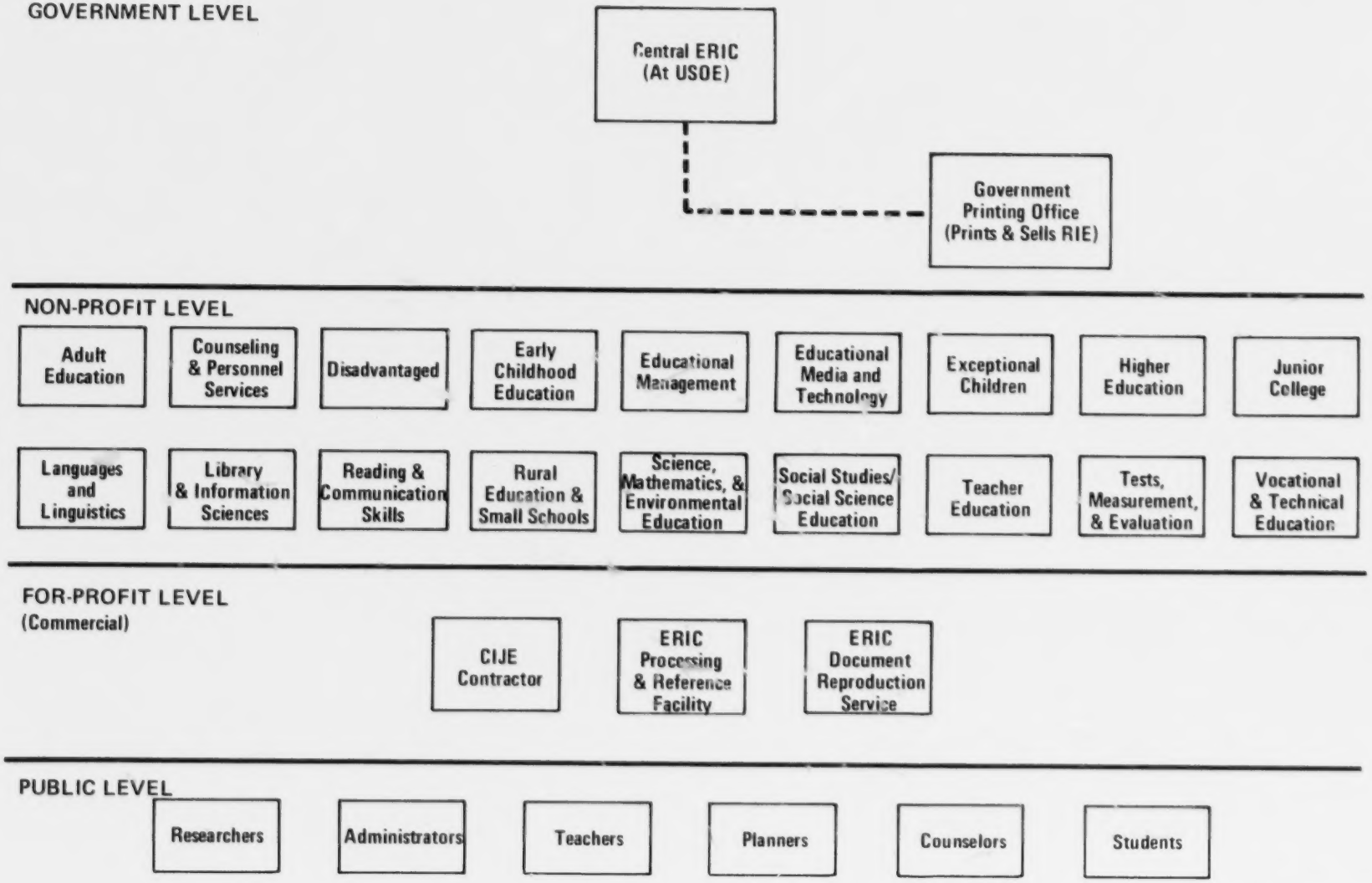
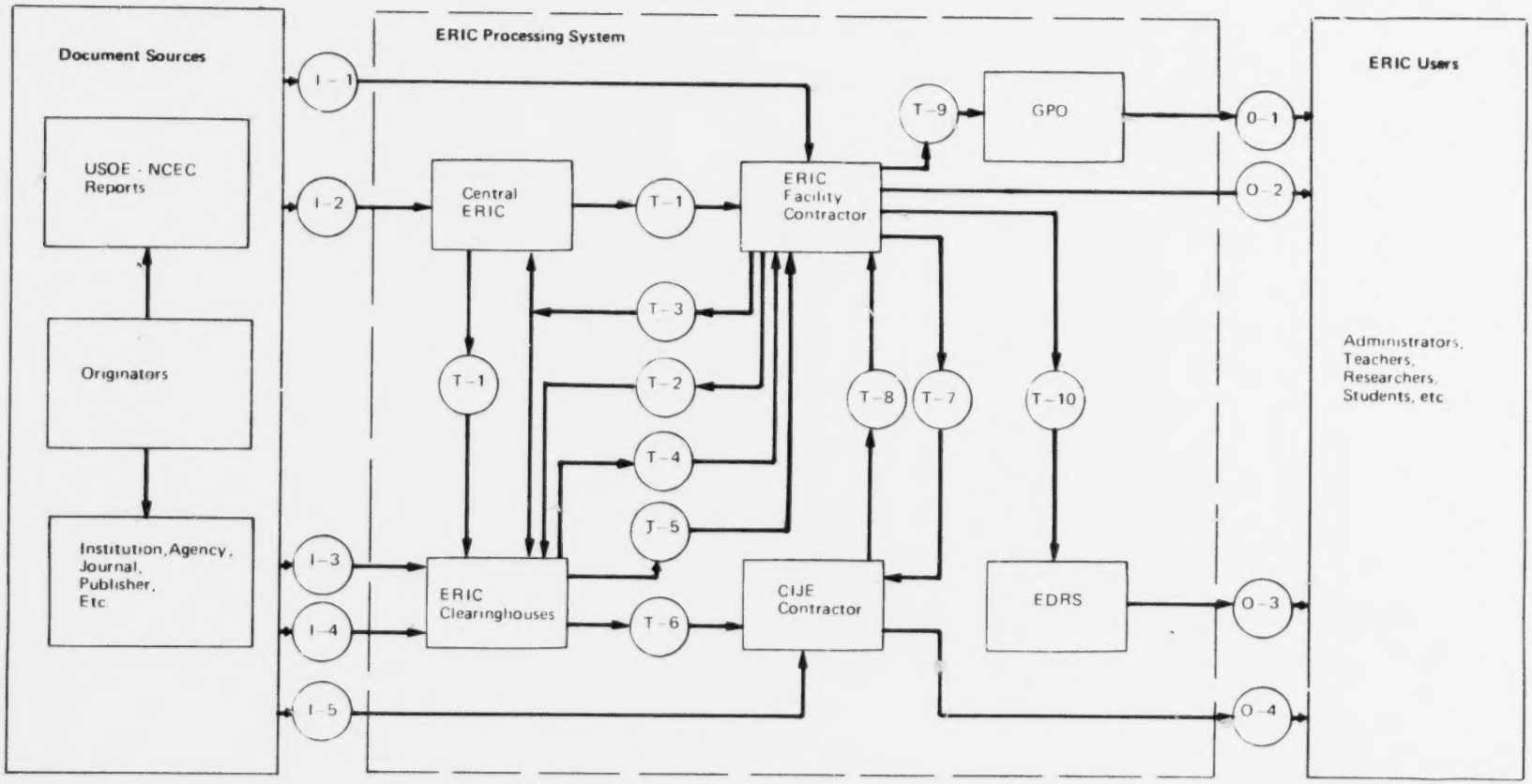


FIGURE I-2. ERIC NETWORK COMPONENTS



I = Major Inputs

- I-1 Acquisitioned Documents
- I-2 Quick Announcement Documents (QADs) for RIE
- I-3 Other Resources and Research Reports
- I-4 Education Journals in Clearinghouse Scope
- I-5 Education Journals Not in Clearinghouse Scope

T = Major Intra-System Transfers

- T-1 QADs to be Processed
- T-2 Acquisitions in Clearinghouse Scope
- T-3 Acquisitions Reports, Working Copies of Thesaurus and Source Directory, CH/ED Cross-Reference Lists, Etc
- T-4 Accessioned and Processed Documents and Resumes
- T-5 Accessioned, but Not Processed Documents
- T-6 Journal Article Resumes
- T-7 Thesaurus and MDS Tapes
- T-8 CIJE Tape
- T-9 RIE Linotron Tape
- T-10 Accessioned Documents and SFR

O = Major Outputs

- O-1 RIE Sales and Distribution
- O-2 ERICTAPE Sales and Distribution
- O-3 Microfiche and Hard Copy Sales
- O-4 CIJE Sales and Distribution

FIGURE I-3. ERIC NETWORK INTERCONNECTIONS

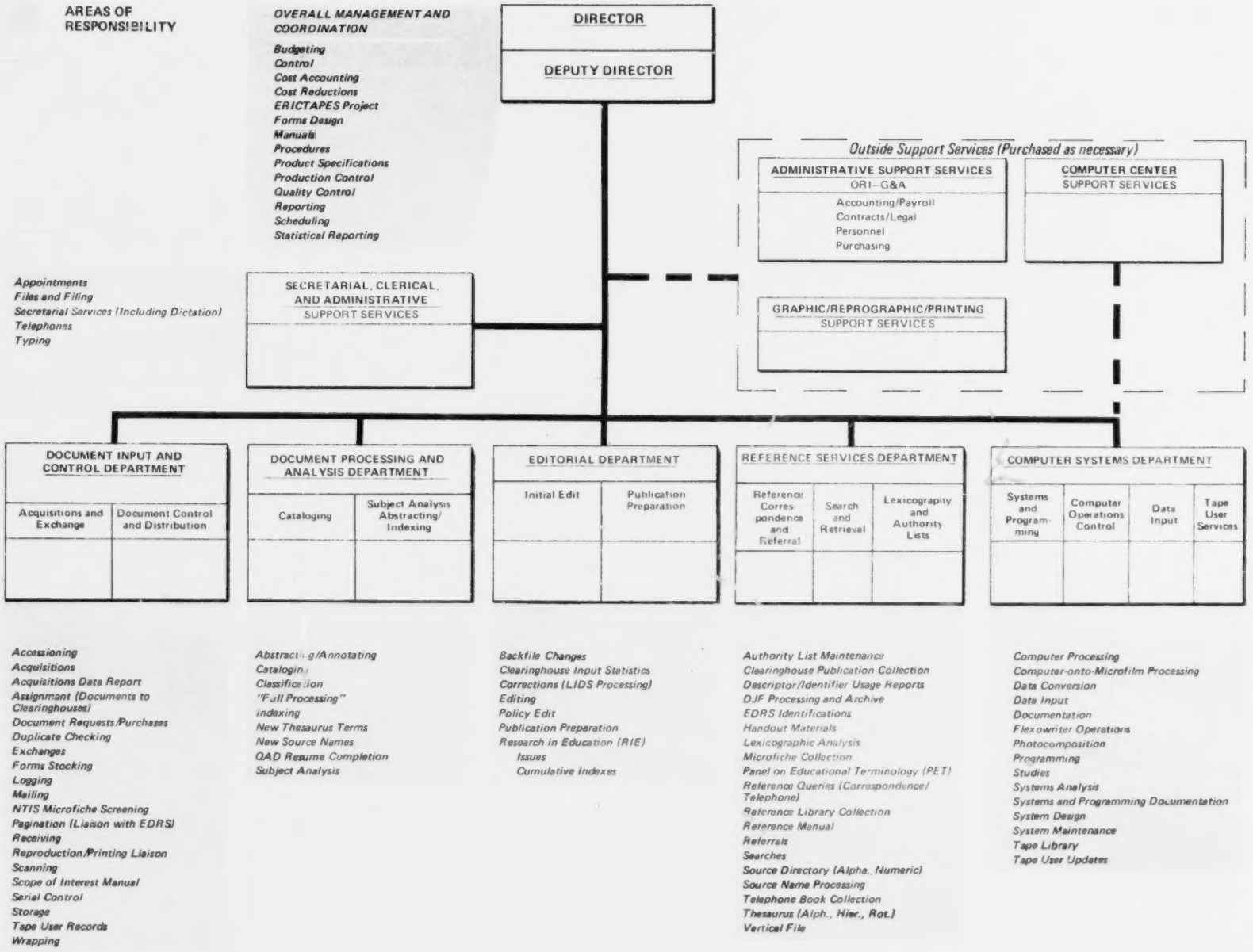


FIGURE IV-1. ERIC FACILITY ORGANIZATION CHART

4-5/6

ERIC PROCESSING AND REFERENCE FACILITY
4833 RUGBY AVENUE, BETHESDA, MARYLAND 20014 • (301) 656-9723
OPERATED FOR THE U.S. OFFICE OF EDUCATION *BY* LEASCO SYSTEMS & RESEARCH CORPORATION

Because your organization is one which produces a number of documents potentially valuable to educators, I invite you to use ERIC to help publicize and disseminate your education research reports.

As you may know, the Educational Resources Information Center (ERIC) is a decentralized nationwide network of clearinghouses designed to bring information about education to administrators, teachers, researchers, and other interested persons. Under the sponsorship of the U.S. Office of Education, ERIC publishes a monthly abstract journal, Research in Education (RIE), which announces recently completed reports of interest to the educational community. Documents indexed in RIE (except for some copyrighted materials) can be purchased in microfiche or hard copy from the ERIC Document Reproduction Service. In addition to RIE, special collections of documents are printed as separate volumes. Furthermore, the clearinghouses prepare reviews, articles, bibliographies, and interpretive summaries, most of which are available through RIE.

By making documents available to the ERIC system, your organization can benefit in the following ways:

1. Persons requesting documents from your office can be referred to the ERIC citations, relieving you of the distribution burden.
2. You and your colleagues can find related works on a topic of interest with less searching.
3. You can reduce the likelihood of redundancy in future contractual efforts.
4. You can increase the possibility that the results of previous efforts will be used in new projects.

To facilitate transmittal of your documents, I would like to discuss with you an automatic distribution arrangement or other procedure which would make it easy for the appropriate people on your staff to forward materials to ERIC. At that time I will be happy to go into more detail and answer any questions you may have concerning the ERIC system.

Please contact me at your early convenience to arrange a meeting which should produce mutually beneficial results for our organizations.

Yours truly,

Murray L. Howder
Acquisitions Librarian

MLH:ka

FIGURE III-2. TYPICAL SOLICITATION LETTER

RT COMMUNICATION (THOUGHT TRANSFER)
DIFFUSION
DOCUMENTATION
FACSIMILE TRANSMISSION
INFORMATION NETWORKS
INFORMATION SERVICES
INFORMATION SYSTEMS
INFORMATION THEORY
MASS MEDIA
MICROFICHE
MICROFILM
PUBLISHING INDUSTRY
REPROGRAPHY

INFORMATION NEEDS 330
BT NEEDS
RT EDUCATIONAL NEEDS
INFORMATION RETRIEVAL
INFORMATION SCIENCE
INFORMATION SEEKING
INFORMATION SOURCES
LIBRARY REFERENCE SERVICES
USE STUDIES

INFORMATION NETWORKS 090
SN INFORMATION SYSTEMS LINKED FOR INFORMATION EXCHANGE THROUGH FORMAL COMMUNICATIONS
BT NETWORKS
RT AUDIOVISUAL COMMUNICATION
COMMUNICATIONS
DIAL ACCESS INFORMATION SYSTEMS
FACSIMILE COMMUNICATION SYSTEMS
INFORMATION DISSEMINATION
INFORMATION SERVICES
INFORMATION SYSTEMS
INTERCOMMUNICATION
LIBRARY NETWORKS
TELEPHONE COMMUNICATION SYSTEMS

INFORMATION PROCESSING 080
NT DATA PROCESSING
INFORMATION STORAGE
INFORMATION UTILIZATION
LIBRARY TECHNICAL PROCESSES
BT INFORMATION SCIENCE
RT ARTIFICIAL INTELLIGENCE
AUTOMATION
BOOK CATALOGS
CATALOGING
CHARACTER RECOGNITION
CLASSIFICATION
COMPUTATIONAL LINGUISTICS
COMPUTERS
COMPUTER SCIENCE
DATA BASES
DISPLAY SYSTEMS
FEEDBACK
FILING
INFORMATION SERVICES
INFORMATION SYSTEMS
INFORMATION THEORY
INPUT OUTPUT
INPUT OUTPUT ANALYSIS
INPUT OUTPUT DEVICES
LIBRARY AUTOMATION
LIBRARY RESEARCH
MACHINE TRANSLATION
ON LINE SYSTEMS
OPTICAL SCANNERS
PATTERN RECOGNITION
PROGRAMING LANGUAGES

INFORMATION RETRIEVAL 330
NT SEARCH STRATEGIES
BT INFORMATION UTILIZATION
RT BIBLIOGRAPHIC COUPLING
CITATION INDEXES
CODIFICATION
COMPUTATIONAL LINGUISTICS
COORDINATE INDEXES
DATA PROCESSING
DIAL ACCESS INFORMATION SYSTEMS
DOCUMENTATION
INDEXES (LOCATERS)
INDEXING
INFORMATION NEEDS
INFORMATION SEEKING
INFORMATION SERVICES
INFORMATION SYSTEMS
INFORMATION THEORY
LIBRARY REFERENCE SERVICES
LIBRARY SCIENCE
PERMUTED INDEXES
PROGRAMING LANGUAGES
RELEVANCE (INFORMATION RETRIEVAL)
THESAURI

INFORMATION RETRIEVAL PRECISION
USE RELEVANCE (INFORMATION RETRIEVAL)

INFORMATION SCIENCE 330
SN GENERATION, TRANSFORMATION, COMMUNICATION, STORAGE, RETRIEVAL, AND USE OF INFORMATION
NT COMPUTER SCIENCE
DOCUMENTATION
INFORMATION PROCESSING
INFORMATION SERVICES
INFORMATION THEORY
LIBRARY SCIENCE
BT TECHNOLOGY
RT CLASSIFICATION
INFORMATION CENTERS
INFORMATION NEEDS
INFORMATION SCIENTISTS
INFORMATION SYSTEMS
LIBRARY EDUCATION
LIBRARY RESEARCH
LIBRARY SCHOOLS
USE STUDIES

INFORMATION SCIENTISTS 380
SN PERSONS WHO OBSERVE, MEASURE, AND DESCRIBE THE BEHAVIOR, PROPERTIES, AND FLOW OF INFORMATION, AND THROUGH RESEARCH ADVANCE ITS UNDERSTANDING AND USE
BT PROFESSIONAL PERSONNEL
RT INFORMATION SCIENCE
LIBRARIANS
LIBRARY SCIENCE

INFORMATION SEEKING 310
BT LEARNING ACTIVITIES
RT COMMUNICATION (THOUGHT TRANSFER)
CONCEPT FORMATION
CONTINUOUS LEARNING
INFORMATION NEEDS
INFORMATION RETRIEVAL
INFORMATION SOURCES
INFORMATION THEORY
INFORMATION UTILIZATION
PROBLEM SOLVING
SEARCH STRATEGIES
USE STUDIES

INFORMATION SERVICES 330
NT LIBRARY SERVICES
BT INFORMATION SCIENCE
SERVICES
RT INFORMATION DISSEMINATION
INFORMATION NETWORKS
INFORMATION PROCESSING
INFORMATION RETRIEVAL
INFORMATION STORAGE
INFORMATION SYSTEMS
INFORMATION UTILIZATION
INTERLIBRARY LOANS
LIBRARY REFERENCE SERVICES

INFORMATION SOURCES 460
NT ARCHIVES
INFORMATION CENTERS
RESOURCE UNITS
RT DATA BASES
INFORMATION NEEDS
INFORMATION SEEKING
INFORMATION STORAGE
INFORMATION UTILIZATION
INSTRUCTIONAL MATERIALS CENTERS
LIBRARIES
LIBRARY REFERENCE SERVICES
RESOURCES
USE STUDIES

INFORMATION STORAGE 330
UF FILING SYSTEMS
BT INFORMATION PROCESSING
STORAGE
RT COMPUTER OUTPUT MICROFILM
COMPUTER STORAGE DEVICES
DATA BASES
DATA COLLECTION
DATA PROCESSING
DICTIONARY CATALOGS
DIVIDED CATALOGS
DOCUMENTATION
FILE CLERKS
FILING
HOLOGRAPHY
INFORMATION CENTERS
INFORMATION SERVICES
INFORMATION SOURCES
INFORMATION SYSTEMS
INFORMATION THEORY
MAGNETIC TAPES
MEDICAL RECORD TECHNICIANS
MICROFORMS
PROGRAMING LANGUAGES
RECORDKEEPING
SEARCH STRATEGIES
UNION CATALOGS

INFORMATION SYSTEMS 330
NT DIAL ACCESS INFORMATION SYSTEMS
DISPLAY SYSTEMS
MANAGEMENT INFORMATION SYSTEMS
ON LINE SYSTEMS
RT DATA PROCESSING
DOCUMENTATION
ELECTRONIC DATA PROCESSING
INFORMATION DISSEMINATION
INFORMATION NETWORKS
INFORMATION PROCESSING
INFORMATION RETRIEVAL
INFORMATION SCIENCE
INFORMATION SERVICES
INFORMATION STORAGE
INFORMATION THEORY
INFORMATION UTILIZATION
INTERLIBRARY LOANS
LIBRARY AUTOMATION
MANAGEMENT SYSTEMS
RELEVANCE (INFORMATION RETRIEVAL)
TELECOMMUNICATION

INFORMATION THEORY 080
UF COMMUNICATION THEORY
BT INFORMATION SCIENCE
RT AUDIOVISUAL COMMUNICATION
COMMUNICATION (THOUGHT TRANSFER)
COMPUTER SCIENCE
CYBERNETICS
INFORMATION DISSEMINATION
INFORMATION PROCESSING
INFORMATION RETRIEVAL
INFORMATION SEEKING
INFORMATION STORAGE
INFORMATION SYSTEMS
INFORMATION UTILIZATION
INPUT OUTPUT
LINGUISTICS
MODELS
OPERATIONS RESEARCH
SPEECH COMPRESSION
TELECOMMUNICATION

INFORMATION UTILIZATION 330
NT INFORMATION DISSEMINATION
INFORMATION RETRIEVAL
PROPAGANDA
BT INFORMATION PROCESSING
RT BIBLIOGRAPHIC COUPLING
INDEXES (LOCATERS)
INFORMATION SEEKING
INFORMATION SERVICES
INFORMATION SOURCES
INFORMATION SYSTEMS
INFORMATION THEORY
LIBRARY RESEARCH

A and M Consolidated Independent School District, College Station, Tex. XPT83094

ABC Unified School District, Hawaiian Gardens, Calif. BBB03110

Aberdeen Municipal Separate School District, Miss. BBB03434
ADDR Aberdeen Municipal Separate School District; P.O.Box 149; Aberdeen, Miss. 39730

Aberdeen School District 58, Idaho. JAX12308

Abernathy Independent School District, Tex. BBB03116

Abilene Christian Coll., Tex. XPT00055
ADDR Abilene Christian College; Abilene, Tex. 79601

Abilene Independent School District, Tex. XPT82102

Abilene Public Schools, Tex. XPT00061
ADDR Abilene Public Schools; Abilene, Tex. 79604

Abilities Inc. of Florida, Clearwater. BBB05088

Abington Heights School District, Clarks Summit, Pa. SYN70189

Abington High School, Pa. North Campus. SYN00070

Abington School District, Pa. BBB00309
SN Abington Township School District, Pa.

Abington Township School District, Pa.
USE Abington School District, Pa.

Abram and Ingleson, Architects, Don Mills (Ontario). BSB02401

Abt Associates, Inc. Cambridge, Mass. MGG00100

Academic Preschool, Champaign, Ill. BBB02003

Academy for Educational Development, Inc., New York, N.Y. QPX00110

Academy for Educational Development, Inc., Washington, D.C. FGK00112

Academy of Pedagogical Sciences of the USSR, Moscow. BBB05542

Academy of Science, Moscow (USSR). BBB04105
SN Akademiya Nauk, Moskva (USSR)

Academy of the Socialist Republic of Rumania, Bucharest. BBB05513

Acadia Parish School Board, Crowley, La. LJN25907

Acalanes Union High School District, Lafayette, Calif. CIQ00117
ADDR Acalanes Union High School District; Lafayette, Calif. 94549

Accomack County Public Schools, Accomac, Va. BBB04838

Accrediting Commission for Junior Colleges, Modesto, Calif. CIQ00125
ADDR Accrediting Commission for Junior Colleges; Modesto Junior College; Modesto, Calif. 95350

ACES-Analog/Hybrid Computer Educational Society, West Long Branch, N.J. BBB04450
ADDR ACES-Analog/Hybrid Computer Educational Society; P. O. Box 308; West Long Branch, N.J. 07764

Achievement House, Inc., San Luis Obispo, Calif. BBB02748
ADDR Achievement House, Inc.; PO Box 53; San Luis Obispo, Calif.

Achievement Motivation Development Project, Cambridge, Mass. BBB01848

Acoustical Materials Association, New York, N.Y. QPX00135

Action for Boston Community Development, Inc., Mass. MGG00150

Action for Children's Television, Boston, Mass. BBB05603

Action for Progress, New York, N.Y. QPX00150

Action-Housing, Inc., Pittsburgh, Pa. SYN00180
SN Allegheny Council to Improve Our Neighborhoods.

Acton Rehabilitation Center, Calif. BBB05735

Ada Independent School District 16, Okla. SBU64947

Adams-Arapahoe School District 28-J, Aurora, Colo. DUN09125

Adams Central School District 1, N.Y. QPX55928

Adams County Board of School Directors, Gettysburg, Pa. SYN70682

Adams County School District 12, Denver, Colo. DUN09317

Adams County School District 14, Commerce City, Colo. DUN09261

Adams High School, Portland, Oreg. BBB02321
SN John Adams High School, Portland, Oreg.

Adams Independent School District 491, Minn. NSD33125

Adams Public Schools, Mass. MGG27861

Adams State Coll. of Colorado, Alamosa. DUN00190
ADDR Adams State Coll. of Colorado; Alamosa, Colo. 81101

Adams Township School District, Painesdale, Mich. MVK32103

ADAPT, A PACE Supplementary Educational Center, Visalia, Calif. BBB00929

Addison-Rutland Supervisory Union, Fair Haven, Vt. YMM87729

Adelaide Univ. (Australia). BBB04413

Adelphi Univ., Garden City, N.Y. QPX00225
ADDR Adelphi Univ.; Garden City, N.Y. 11530

AD HOC Committee, Council of Teaching Hospitals of the Assn. of American Medical Colleges. BBB01473

Ad Hoc Committee on California Indian Education, Modesto, Calif. CIQ00249

Ad Hoc Committee on Patent Documentation, Washington, D.C. BBB00398

Administration on Aging (DHEW), Washington, D.C. BBB02827
SN Social and Rehabilitation Service (DHEW), Washington, D.C. Administration on Aging

Administrative Management, OAC. RLA00230

Adolescence Resources Center, Sumter, S. Car. BBB03973
ADDR Adolescence Resources Center; 206 Church St.; Sumter, S. Car. 29150

Adult Basic Education, Milwaukee, Wis. Council for Spanish Speaking. BBB00757
ADDR Adult Basic Education; 528 W. National Ave.; Milwaukee, Wis.

Adult Education Association in Massachusetts, Inc., Boston. MGG00235

Adult Education Association, New Delhi (India).
USE Indian Adult Education Association, New Delhi.

Adult Education Association of East and Central Africa. HUR00238
NOTE Floating Society, Place of Location Variable.

Adult Education Association of U.S.A., Washington, D.C. FGK00241
ADDR Adult Education Association of U.S.A.; 1225 19th St., NW.; Washington, D.C. 20036

Adult Education Branch, DAE. RMQ66001

Adult Education Council of Greater Chicago, Ill. JIM00242

Adult Referral and Information Services in Education, Providence, R.I. BBB00213

Spons Agency—Naval Postgraduate School, Monterey, Calif.
Report No—AD-728-588
Pub Date Jun 71
Note—99p.; Thesis submitted to the Naval Postgraduate School
Available from—National Technical Information Service, Springfield, Virginia 22151 (AD-728 588; MF $.95; HC $3.00)
Document Not Available from EDRS.
Descriptors—*Computer Assisted Instruction, *Computer Programs, Grade 4, *Mathematics Instruction, *Programing Languages
Currently in computer-assisted instruction (CAI) systems a number of problems are presented to each student during a session, with each individual problem being specified by the author of the session. A better approach might be to provide the author with a language in which he can describe to the computer the general type of problem he wants his students to be taught so that the machine can generate the specific problems. A subset of English and mathematical notation which the teacher can use to describe a general problem type has been developed. The problem description processor accepts the general problem description and produces a low level language which is used by a problem description interpreter to produce specific problems. The system has been used for fourth grade arithmetic problems with success and could be extended for use in other areas of instruction. Appended are detailed descriptions of the processor and interpreter as well as a copy of the program. (Author/SH)

ED 063 797 EM 010 022
Hilliard, Robert L.
The Information/Motivation Industry: Relevance, Revolt, and Responsibility.
Federal Communications Commission, Washington, D.C.
Pub Date 12 Mar 69
Note—14p.; Speech presented to the American Management Association Conference on Information Market Opportunities in the 1970's (New York, N. Y., March 12, 1969)
EDRS Price MF-$0.65 HC-$3.29
Descriptors—*Communications, *Instructional Television, *Mass Media, *Social Change, Speeches, *Technological Advancement
The tremendous impact and potential of mass media must be put to work efficiently before it is too late. The mass media can increase dissatisfaction with the status quo and move the world forward; they can lessen dissatisfaction and provide bases for understanding existing values and goals; they can give the world an understanding and stimulation in a totally new structure of communication resources. Some crucial areas where mass media could have great effect are the inner-city vs. suburbs struggle, formal education, international communications, and inter-group communications. The controllers of the communications industry are in a position of great responsibility. (Author/RH)

ED 063 798 EM 010 024
Hilliard, Robert L.
The Software Gap: Relevancy in Content and Technique.
Federal Communications Commission, Washington, D.C.
Pub Date 14 Aug 69
Note—5p.; Speech presented to the American Management Association Annual Conference on Education and Training (5th, New York, N. Y., August 14, 1969)
EDRS Price MF-$0.65 HC-$3.29
Descriptors—*Educational Technology, *Speeches, *Technological Advancement
Identifiers—*International University of Communications, Software
Is currently produced software helping solve specific problems, or is it geared toward maintaining outmoded educational programs? Can it be a creative service? One should ask of any given piece of software if it is produced to interrelate with all the other learning resources and experiences of the student, rather than to fit a particular machine or particular course. The International University of Communications, beginning operations in 1971, will be based on an individualized learning-tutorial system which will use educational technology to free the teacher from all the machine-like parts of his job and leave his time for personal, advisory work with students. The crucial question is whether the software industry will be able to supply the University with the highly integrated, multi-media, intercurricular content needed for effective application of this learning system. (Author/RH)

ED 063 799 EM 010 026
Hilliard, Robert L.
Are You Ten Feet Tall?
Federal Communications Commission, Washington, D.C.
Pub Date 19 Apr 67
Note—11p.; Speech presented to the Annual Instructional Television Conference of the National Association of Educational Broadcasters, the Electronic Industries Assn. and the Educational Media Council (New York, N. Y., April 19, 1967)
EDRS Price MF-$0.65 HC-$3.29
Descriptors—*Educational Television, *Individualized Instruction, *Instructional Television, Speeches, *Technological Advancement, *Television
Instructional television (ITV) today is being used by only one-fifth of the schools in this country; even though television makes possible education tailor-made to the needs of each student, it is often used merely as a supplement to education as memorization of standardized facts. Television must be used to bring the world to the student and vice versa, and it is the responsibility of those who develop instructional television to see that it is used correctly so that the long-needed revolution in education can finally take place. (Author/RH)

ED 063 800 EM 010 028
Hilliard, Robert L.
Television and Childhood Education.
Federal Communications Commission, Washington, D.C.
Pub Date 9 Aug 66
Note—13p.; Speech presented to the American Management Association International Conference (2nd, New York, N. Y., August 9, 1966)
EDRS Price MF-$0.65 HC-$3.29
Descriptors—Broadcast Industry, Children, Educational Development, Educational Objectives, *Educational Television, Programing (Broadcast), Speeches, Television
Identifiers—FCC, *Federal Communications Commission
To make adequate use of mass media for children's education, we must recognize that the medium is the message, that the conveyer is the content. The medium itself changes behavior, learning and growth patterns of the child. For example television itself teaches a special kind of visual awareness and enhances the ability to relate non-immediate mediated experience to live experience. Once this is recognized, we can begin making better use of media for educational goals. Our educational goals for children are: to prepare individuals for effective participation as citizens; to encourage self-realization; to develop vocational skills; to foster ethical and aesthetic growth. But educational media have not done much to help meet these goals. Educational programming aimed at children has been inadequate. Changes are needed. We should start by recognizing the considerable impact of TV on youth, and by agreeing that a primary goal of TV should be to meet children's educational needs. (MG)

ED 063 801 EM 010 032
Hilliard, Robert L.
Communications and Crisis.
Federal Communications Commission, Washington, D.C.
Pub Date 9 Aug 67
Note—6p.; Speech presented to the Annual Conference on Education and Training of the American Management Association (3rd, New York, N. Y., August 9, 1967)
EDRS Price MF-$0.65 HC-$3.29
Descriptors—*Business Responsibility, Economic Disadvantagement, Self Actualization, *Television, *Urban Culture, *Urban Education
At a time of urban crisis, it becomes essential for people to learn about the special problems and needs of other people in the same community. If not actual experience, then visual experience through television can provide a good view into the perspective of other cultures. Television has an obligation to provide education of this sort, particularly for the ghetto child who has the intelligence and potential to learn, but is held back by our print-oriented educational process. The mass media must be convinced to provide a socializing situation for the child, and to provide the problems of the real world as the learning problem. Further, this sort of education or communication should be also intended for adults, both advantaged and disadvantaged, so that understanding will be increased. The first task, however, is to make a dent in the hopelessness that ghettoized Blacks--to bring some bit of reality, as opposed to the oft-broken promises, to the dream that there is some hope for their children. If television has shown the suburban promised land, it also seems necessary that television could show people how to reach that land. (SH)

ED 063 802 EM 010 052
Fieiss, David Ambrosino, Lillian
An International Comparison of Children's Television Programming.
National Citizens Committee for Broadcasting, Washington, D.C.
Pub Date Jul 71
Note—159p.
EDRS Price MF-$0.65 HC-$6.58
Descriptors—Commercial Television, *Comparative Analysis, National Programs, *Programing (Broadcast), Statistical Data, Television, *Television Commercials, *Television Research
Identifiers—Australia, Canada, Europe, Japan, United States
The results of a comparison of television programming for children in the United States, Canada, Japan, and the democracies of Western Eruope are presented. It was found that: in European countries no advertiser is allowed to sponsor a children's program, almost none of these programs carries commercials, and except in Italy, no host of a children's program can make any type of TV commercials. The networks have either individual children's departments or coordinators of regional children's departments; these departments make about 58 percent of the children's programs shown. For Canada, the United States, and Japan, only the United States has no weekday afternoon network children's program; only the U.S. has more advertising on afternoon children's programs than on adult evening programs; the U.S. carries at least twice as much advertising on these programs as do Canada or Japan. Other differences noted also point to deficiencies of U.S. programming for children. Appendixes discuss children's programming in Australia and present charts and figures which summarize the data. This document formerly announced as ED 057 631. (JK)

ED 063 803 EM 010 054
Marin, Kat, Ed. And Others
The New Schools Exchange Continuing Directory of New and Innovative Schools in the United States and Canada.
New Schools Exchange, Santa Barbara, Calif.
Pub Date 30 Jun 72
Note—40p.
Available from—New Schools Exchange, 701 B Anacapa, Santa Barbara, California 93101
Journal Cit—New Schools Exchange; n81 June 30, 1972
Document Not Available from EDRS.
Descriptors—*Directories, *Educational Innovation, *Experimental Colleges, *Experimental Schools, Innovation, Open Education
Identifiers—Alternative Education, *Free Schools
An updated directory of new and innovative schools in the U.S. and Canada lists over 700 schools at all educational levels. The schools are listed by states; information is given about the address, phone number, ages of students, date founded, tuition, ratio of students to teachers, and a phrase or two describes any special quality of the school. The directory also lists learning networks and regional clearinghouses devoted to alternative education. (JY)

ED 063 804 24 EM 010 055
Thomas, Warren H.
The Development of a Statistical Experiment Simulator. Final Report.
State Univ. of New York, Albany. Research Foundation.
Spons Agency—Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No—BR-7-0581
Pub Date Jan 72
Grant—OEG-2-9-420581-1047-010

ERIC PROCESSING AND REFERENCE FACILITY OPERATED FOR U.S. OFFICE OF EDUCATION BY LEASCO SYSTEMS & RESEARCH CORPORATION

In reply to your inquiry about education research reports:

The Educational Resources Information Center (ERIC) of the Office of Education publishes a monthly abstract journal, Research in Education, which announces recently completed research or research-related reports of interest to the educational community. Reports are abstracted and indexed by subject, author or investigator, and responsible institution.

Research in Education started publication in November 1966 and can be purchased in single copies or on subscription from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

Individual monthly volumes and yearly cumulations of Research in Education are available in many college and university libraries as well as some special libraries. Most of these libraries are open to the public for on-site reference. Also, the volumes are available in the offices of many school systems at the state and local level.

Reports referenced in Research in Education (except for some copyrighted material) can be purchased in microfiche or hard copy from the ERIC Document Reproduction Service (EDRS), Leasco Information Products, Inc., 4827 Rugby Avenue, Bethesda, Maryland 20014. All orders should cite the Document Accession Number (ED#).

Enclosed is literature which explains the operation of ERIC in detail and lists the ERIC Clearinghouses and their primary areas of subject coverage. All of the Clearinghouses' major products (i.e., bibliographies, reviews, substantive articles, monographs, etc.) will be announced in Research in Education. The Clearinghouses have limited resources for reference and bibliographic services on specific subject areas. Therefore, all routine searches for documentary material, no matter what the subject, should begin with Research in Education.

Sincerely yours,

Dorothy A. Slawsky

(Mrs.) Dorothy A. Slawsky
Reference Librarian
ERIC Processing and
Reference Facility

Enclosures

4833 RUGBY AVENUE, BETHESDA, MARYLAND 20014 • (301) 656-9723

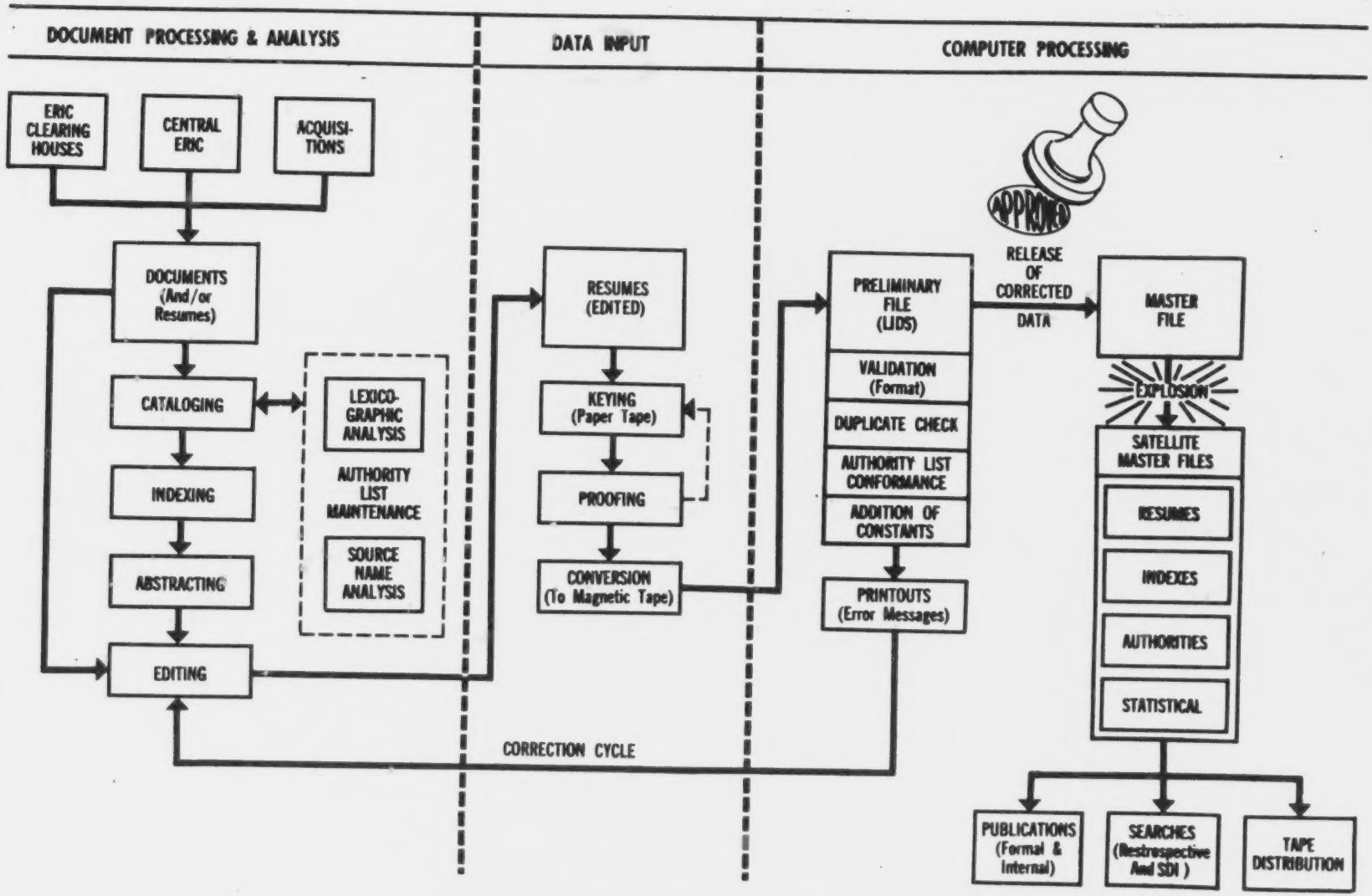
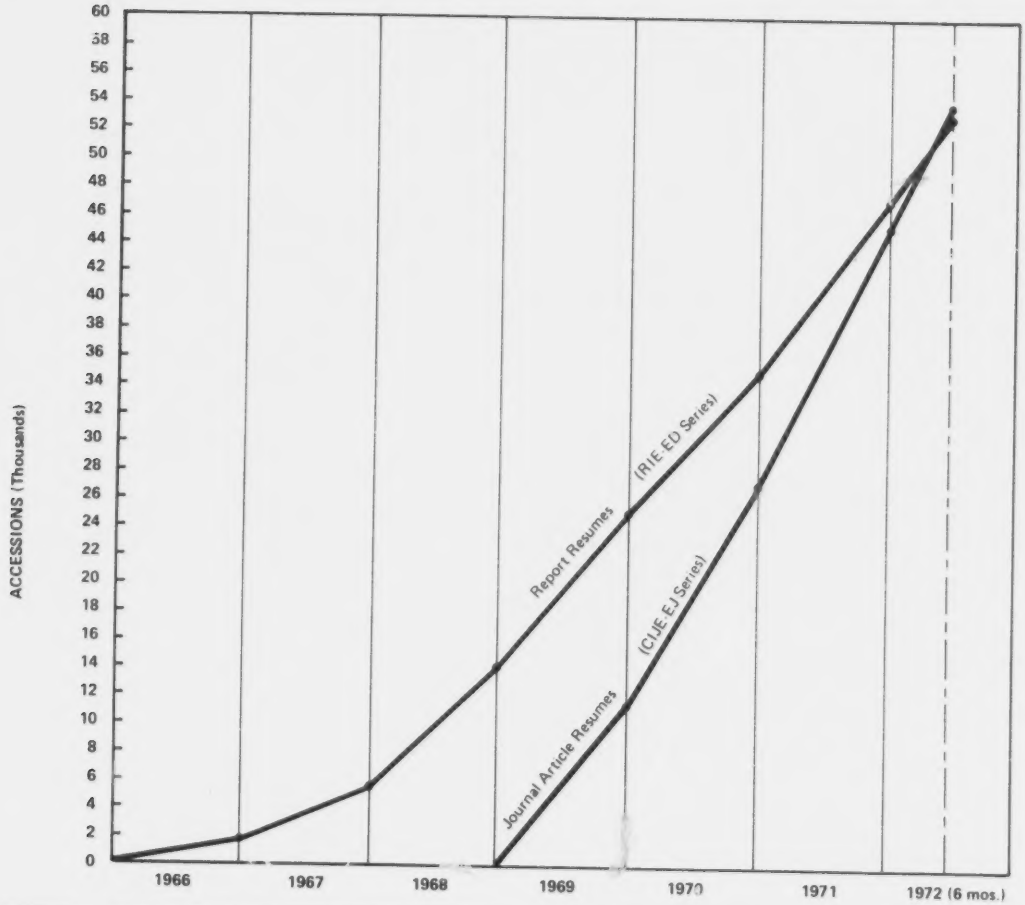


FIGURE III-31. ERIC FACILITY PROCESS FLOW CHART (Generalized)



Reports	Accessions Added:	1834	3469	8803	10,453	10,456	12,330	5838
	Cumulative Total:		5303	14,106	24,559	35,015	47,345	53,181
Articles	Accessions Added:				11,707	15,892	17,672	8656
	Cumulative Total:				11,707	27,599	45,271	53,927

I. ERIC DATA BASE – FILE GROWTH

SUBJECT TO OE APPROV

ERICTAPES

MAIN FILES

Under a special authorization by the Office of Education, Leasco Systems & Research Corporation offers for public sale magnetic tape copies of the files of the Educational Resources Information Center (ERIC). These tapes are available only by purchase from Leasco.

The ERIC files represent virtually complete coverage of current significant developments in educational research. The report literature is covered from 1966 and the journal literature from January 1969. These files have been assembled by a unique network of cooperating activities, including: 19 subject-specialized clearinghouses operated by universities and professional organizations; the Office of Education (DHEW); and several commercial contractors.

The requirement for access to the ERIC data base in machine-readable form exists both within the ERIC dissemination network and in other areas of the educational community. In order to meet this requirement in the most timely, equitable, and economic manner, the Office of Education, in keeping with its task of providing maximum utilization of its information at minimum cost to the Government, has determined that the entire user community will be best served by permitting open sale of the files in the form of magnetic tapes. On the strength of LEASCO's experience in large scale dissemination of magnetic tape files in a wide variety of formats, and our familiarity with the ERIC System and program as operator of the ERIC Processing and Reference Facility, we have been selected to perform this task for the educational community.

All tapes are prepared on 9 track tapes at the customer's choice of 800 BPI (Bits per Inch) or 1600 BPI. The tapes are generated in IBM 360 Operating System (OS) format for direct utilization, but they can be easily converted to local formats.* Tapes are supplied under two options: they may be purchased from LEASCO or supplied by the customer for duplication. (See Warranty and Terms and Conditions). The initial order for all ERICTAPES includes full documentation of tape format and content. Two files constitute the main ERIC data base files.

*Standard distribution format is all upper case. However, for those users with proper computer configuration, *including the necessary print chain*, tapes in upper/lower case can be supplied.

REPORT RESUMES

These files consist principally of resumes of research reports filed by contractors and grantees on the results of funded educational research. All ED-numbered documents announced in *Research in Education* (RIE) and other ERIC publications will be found on the file. Each resume includes full descriptive cataloging, indexing, and an abstract -- all of the information which appears in the sample RIE entry that is displayed below.

REPORT RESUME

ERIC Accession Number—identification number sequentially assigned to documents as they are processed.

Author(s).

Title.

Organization where document originated.

Date published.

Contract or Grant Number—contract numbers have OEC prefixes; grant numbers have OEG prefixes.

Alternate source for obtaining documents.

EDRS Price—price through ERIC Document Reproduction Service. "MF" means microfiche; "HC" means hard copy. When listed "not available from EDRS" other sources are cited above.

ED 013 371 64 AA 000 223
Norberg, Kenneth D.
Iconic Signs and Symbols in Audiovisual Communication, an Analytical Survey of Selected Writings and Research Findings, Final Report.
Sacramento State Coll., Calif.
Spons Agency—USOE Bur. of Research
Report No.—NDEA-VIIB-449
Pub Date—15 Apr 66
Contract—OEC-4-16-023
Note— 29p.; Speech given before the 22nd National Conference on Higher Education, Chicago, Ill., 7 Mar 66.
Available from—Indiana University Press, 10th and Morton St., Bloomington, Indiana 47401 ($2.95)
EDRS Price MF-$0.65 HC-$3.29
Descriptors—*Bibliographies, *Communication (thought transfer), *Perception, *Pictorial Stimuli, *Symbolic Language, Instructional Technology, Visual Stimuli.
Identifiers—Stanford Binet Test, Wechsler Intelligence Scale; Lisp 1.5, Cupertino Union School District.
The field of analogic, or iconic, signs was explored to (1) develop an annotated bibliography and (2) prepare an analysis of the subject area. The scope of the study was limited to only those components of messages, instructional materials, and communicative stimuli that can be described as the analytic signs as reflected in the literature and research. (AL)

Legislative Authority Code for identifying the legislation which supported the research activity (when applicable). *

Clearinghouse accession number.

Sponsoring Agency—agency responsible for initiating, funding, and managing the research project.

Report Number and/or Bureau Number—assigned by originator.

Descriptive Note.

Descriptors—subject terms which characterize substantive contents. Only the major terms, preceded by an asterisk, are printed in the subject index.

Identifiers — additional identifying terms not found in the **Thesaurus of ERIC Descriptors.**

Informative Abstract.

Abstractor's initials.

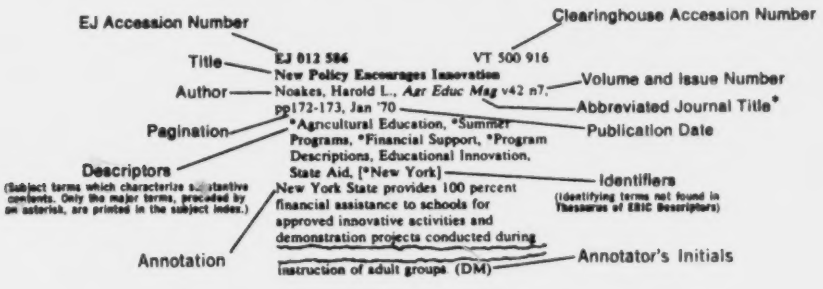
*The key to these codes appears in Research in Education.

There are now more than 60,000 report resumes on file and this number increases at the rate of approximately 900-1000 per month. The Report Resume Files are currently contained on 5 tapes at 800 BPI and 3 tapes at 1600 BPI. In addition to the base file, updates are available on monthly, quarterly, and annual bases.

JOURNAL ARTICLE RESUMES

These files consist of resumes of journal articles dealing with education selected from over 500 education and education-related journals. All EJ-numbered accessions announced in *Current Index to Journals in Education* (CIJE) will be found on the file. These resumes are in the same format as the ERIC report resumes, except that the abstract is replaced by a 30 to 50 word annotation when the title does not clearly indicate the subject matter of the article.

JOURNAL ARTICLE RESUME


EJ Accession Number
Clearinghouse Accession Number
Title
EJ 012 586
VT 500 916
New Policy Encourages Innovation
Author
Noakes, Harold L., Agr Educ Mag v42 n7,
Volume and Issue Number
pp172-173, Jan '70
Abbreviated Journal Title*
Pagination
*Agricultural Education, *Summer Programs, *Financial Support, *Program Descriptions, Educational Innovation, State Aid, [*New York]
Publication Date
Descriptors
(Subject terms which characterize substantive contents. Only the major terms, preceded by an asterisk, are printed in the subject index.)
Identifiers
(Identifying terms not found in Thesaurus of ERIC Descriptors)
New York State provides 100 percent financial assistance to schools for approved innovative activities and demonstration projects conducted during
Annotation
Annotator's Initials
instruction of adult groups. (DM)

*A list of these with full titles appears in Current Index to Journals in Education.

There are now more than 50,000 journal article resumes on file and the number is expected to grow at a rate of approximately 1500 per month. Quarterly updates are available.

ERICTAPES
PERIPHERAL FILES

Extending the usefulness of the master files of the ERIC data base, Leasco Systems & Research Corporation also offers five peripheral files for sale as ERICTAPES. Each of the four postings files is an inverted file – maximizing search efficiency with ready reference. Each is on tape at either 800 or 1600 BPI (Bits per Inch) and in 360 OS (Operating System) Format. As with the Main Files, documentation is provided with each initial shipment.

DESCRIPTOR POSTINGS (RIE and CIJE Versions)

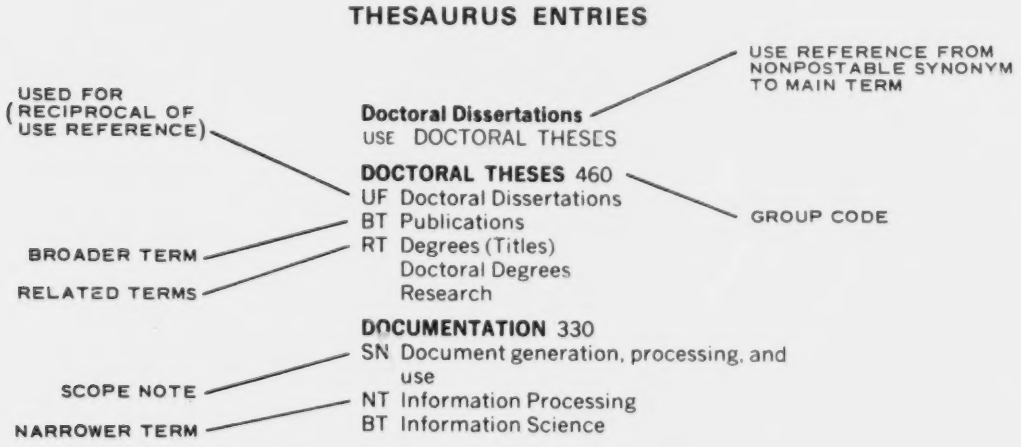
Two versions of this file are available – one for report resume postings and the other for journal article resume postings. Each file consists of Main (postable) Terms in the *Thesaurus of ERIC Descriptors*, followed by the accession numbers in the relevant resume collection which have been indexed by that term. For the RIE version, nearly 5000 terms are listed, with more than 600,000 postings; for the CIJE version, nearly 4600 are listed, with more than 350,000 postings. Each file thus represents a complete subject index to its particular collection. Each is updated quarterly. Each file is contained on a single tape.

IDENTIFIER POSTINGS (RIE and CIJE Versions)

Identifiers are employed to provide depth of indexing in specialized areas. Unlike Descriptors, Identifiers are not cross-referenced or structured. Rather, they are specific project names, trade names, geographical locations, etc. The report resume and journal article resume Identifier posting files present all of the ERIC Identifiers followed by the accession numbers indexed by them. There are presently over 15,000 Identifiers in the RIE file and over 50,000 postings. The CIJE version lists over 11,000 terms and over 21,000 postings. Each version of the Identifier postings file is contained on a single tape and each is updated quarterly.

THESAURUS ENTRIES

This file consists of the complete *Thesaurus of ERIC Descriptors*, from which subject indexing terms are selected for both report resumes and journal article resumes. In addition to Main (postable) Terms, Use References, and Scope Notes, it includes both hierarchical (Broader Term, Narrower Term) and Related Term cross-references. There are approximately 7000 terms (5000 Main Terms and 2000 Use References) on file, and the number is expected to grow at a rate of approximately 10 per month. The updated file is available quarterly. A portion of the *Thesaurus of ERIC Descriptors* appears below with callouts identifying the elements of the display.



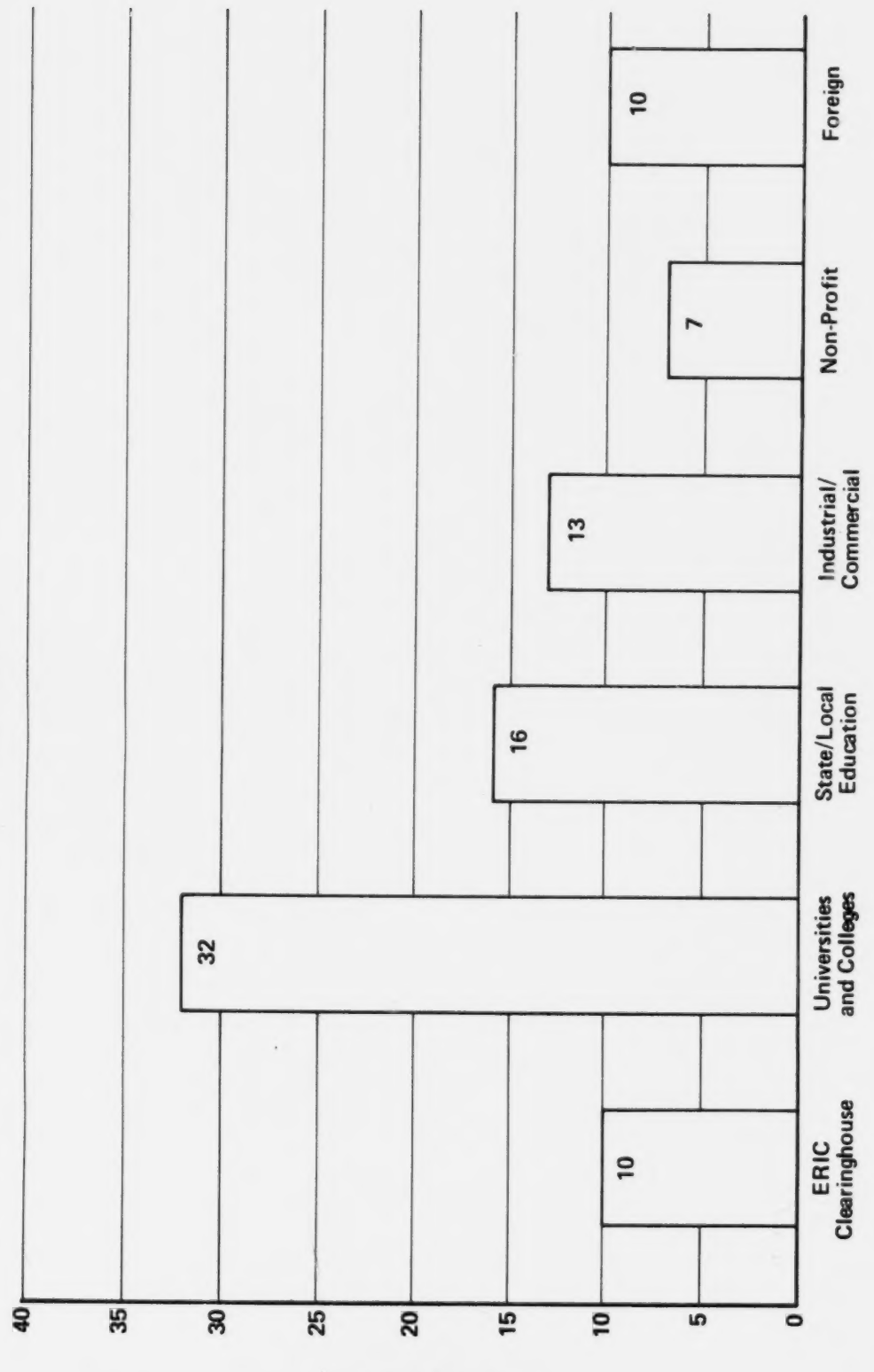
ERICTAPES - COMPONENT FILES AND THEIR STORAGE REQUIREMENTS AT DIFFERENT DENSITIES

	COMPLETE DATA BASE		UPDATES	
	1600 BPI	800 BPI	Per Quarter	Annually (4 Updates)
Research in Education Files	Number of Tapes	Number of Tapes	Number of Tapes	Number of Tapes
Report Resumes	3	5	1	4
Descriptor Postings	1	1	1	4
Identifier Postings	1	1	1	4
RIE TOTAL	5	7	3	12
Current Index to Journals In Education Files				
Journal Article Resumes	1	2	1	4
Descriptor Postings	1	1	1	4
Identifier Postings	1	1	1	4
CIJE TOTAL	3	4	3	12
Thesaurus File	1	1	1	4
GRAND TOTAL	9	12	7	28

XII. A ERIC TAPE USERS

(Thru June 1972)

XII. B ERIC TAPE DISTRIBUTION
(Thru June 1972)



FL ERIC Clearinghouse on Languages and Linguistics *
Modern Language Association of America
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New York, New York 10011

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ERIC MASTER SCHEDULE – 1973

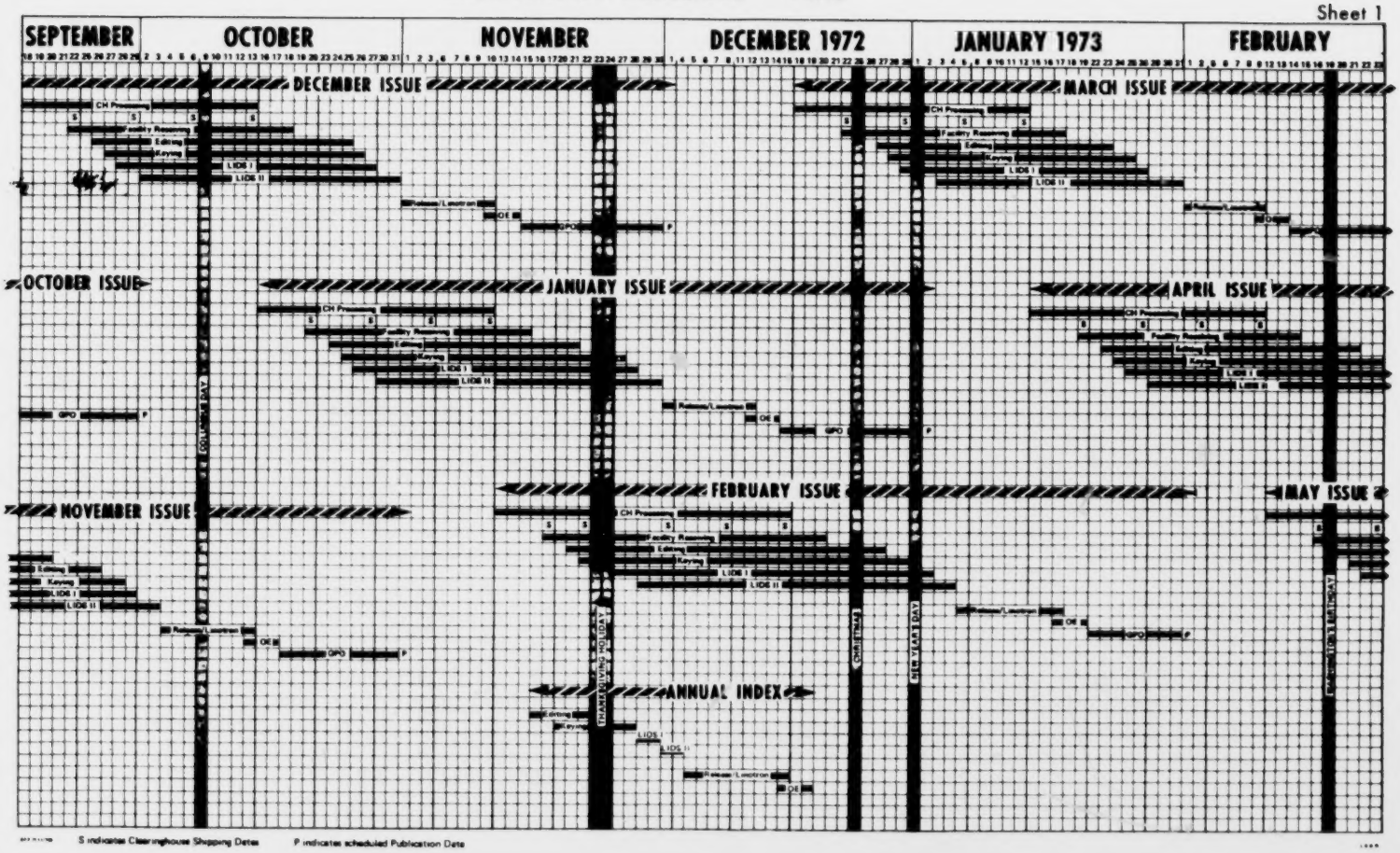

FIGURE III-41. ERIC MASTER SCHEDULE-1973

END

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